Claims

1. A pipe for conveying fluids, the pipe comprising a tubular member formed of a plastic material, and a plurality of electrical current conductive materials dispersed in the plastic material for increasing the electrical conductivity of the tubular layer.

2. The pipe of claim 1 further comprising an electrical conductor connected to two portions of the tubular layer so that when electrical power is supplied to the conductor, the current flows through the materials to heat the pipe and the fluids.

3. The pipe of claim 2 wherein the electrical conductor is connected to the respective ends of the tubular member.

4. The pipe of claim 1 wherein the electrical conductivity of the materials is greater than that of the plastic material.

5. The pipe of claim 1 further comprising an electrical power source connected to the electrical conductor, and wherein the amount of electrical power flowing from the power source, and through the conductor and the layer can be varied to control the temperature of the fluid.

6. The pipe of claim 1 wherein the materials are carbon.

7. The pipe of claim 1 wherein the materials are carbon nanotubes.

8. The pipe of claim 1 wherein the nanotubes are a convex cage of atoms with only hexagonal and/or pentagonal faces.

9. The pipe of claim 7 wherein each nanotube has a single wall with a diameter in the range of 1.2–1.4.

10. The pipe of claim 7 wherein each nanotube has multiple walls.

11. The pipe of claim 7 wherein the nanotubes have a length-to-diameter ratio that is greater than 800.

12. The pipe of claim 7 wherein the density of the nanotubes in the layer is less than the density of metal that would have to be dispersed in the layer to achieve the same electrical conductivity.

13. The pipe of claim 7 wherein the percolation threshold for the nanotubes is less than one half of one percent by volume.

14. The pipe of claim 7 wherein the density of the nanotubes in the layer less than the density of metal that would have to be dispersed in the layer to achieve the same electrical conductivity.

15. The pipe of claim 1 further comprising a tubular plastic layer, which is surrounded by the tubular member.

16. The pipe of claim 1 further comprising a tubular plastic layer surrounding the tubular member.

17. The pipe of claim 1 further comprising a tubular armor layer, which is surrounded by the tubular member.

18. The pipe of claim 1 further comprising a tubular armor layer surrounding the tubular member.

19. The pipe of claim 1 further comprising a tubular carcass layer which is surrounded by the tubular member.

20. The pipe of claim 19 further comprising a plastic tubular layer extending between the tubular member and the carcass layer.

21. A method of manufacturing a pipe for conveying fluids, the method comprising forming the pipe, at least in part, with a tubular member formed of a plastic material, and dispersing a plurality of electrical current conductive materials in the plastic material for increasing the electrical conductivity of the tubular layer.

22. The method of claim 21 further comprising connecting an electrical conductor connected so that when electrical power is supplied to the conductor, the current flows through the materials to heat the pipe and the fluids.

23. The method of claim 22 further comprising connecting the electrical conductor to the respective ends of the tubular member.

24. The method of claim 21 wherein the electrical conductivity of the materials is greater than that of the plastic material.

25. The method of claim 21 further comprising connecting an electrical power source to the electrical conductor, and varying the amount of electrical power flowing from the power source, and through the conductor and the layer to control the temperature of the fluid.

26. The method of claim 21 wherein the materials are carbon.

27. The method of claim 21 wherein the materials are carbon nanotubes.

28. The method of claim 27 wherein the nanotubes are a convex cage of atoms with only hexagonal and/or pentagonal faces.

29. The pipe of claim 27 wherein each nanotube has a single wall with a diameter in the range of 1.2–1.4.

30. The pipe of claim 27 wherein each nanotube has multiple walls.

31. The method of claim 27 wherein the nanotubes have a length-to-diameter ratio that is greater than 800.

32. The method of claim 27 wherein the density of the nanotubes in the layer is less than the density of metal that would have to be dispersed in the layer to achieve the same electrical conductivity.

33. The method of claim 27 wherein the percolation threshold for the nanotubes is less than one half of one percent by volume.

34. The method of claim 27 wherein the density of the nanotubes in the layer is less than the density of metal that would have to be dispersed in the layer to achieve the same electrical conductivity.

35. The method of claim 21 further comprising providing a tubular plastic layer, which is surrounded by the tubular member.

36. The method of claim 21 further comprising surrounding the tubular member with a tubular plastic layer surrounding the tubular member.

37. The method of claim 21 further providing a tubular armor layer, which is surrounded by the tubular member.

38. The method of claim 21 further comprising surrounding the tubular member with a tubular armor layer.

39. The method of claim 21 further comprising providing a tubular carcass layer, which is surrounded by the tubular member.

40. The method of claim 39 further comprising providing a plastic tubular layer between the tubular member and the carcass layer.